**Department of Chemical Engineering**

**Research Activity Report (Jun 2018- May 2019)**

**1. Research activities of the faculty members:**

Number of faculty in the Department : 21

Number of faculty with Ph D qualification : 7

Number of faculty pursuing Ph D : 6

A). Papers published by the faculty members in National and International Journals:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S. No. | Name of Faculty | Title of the paper | Title of Journal/ Publisher | Date |
| 1 | D.Swaminathan | Studies on the influence of various metabolic uncouplers on the biodegradation rate of toluene in a biofilm bio-filter reactor | Iranian Journal of Chemistry and Chemical Engineering | Jan2019 |
| 2 | N Meyyappan, S Rajasekar | Dynamic Simulation of Heat transfer through Cooling Tower using MATLAB Simulink | American International Journal of Research in Science, Technology, Engineering and Mathematics  | Jan 2019 |
| 3 | N. Arun Prem Anand | PID Controller Tuning using ASPEN HYSYS | International Journal of Research in Engineering and Advanced Technology | Apr 2018 |
| 4 | N. Arun Prem Anand | Comparative Study of PID Controller tuning methods using ASPEN HYSYS | International Journal of Scientific Research and Review | Apr 2018 |
| 5 | N. Arun Prem Anand | Enhanced corrosion protection by recycled Polyurethane | Asian Journal of Applied Science and Technology | Apr 2018 |
| 6 | N. Arun Prem Anand | Comparative Performance Analysis of Industrial Scale Catalytic Steam Reformer with Membrane Steam Reformer | Computer-Aided Chemical Engineering Vol. 43. Edited by: Anton Friedl, Jí J. Klemeš, Stefan Radl, Petar S. Varbanov, and Thomas Wallek. Published by: Elsevier B. V., Amsterdam | June2018 |
| 7 | N. Arun Prem Anand | Modeling and optimization of Industrial Scale Membrane Steam reformer for production of Hydrogen | Global Challenges in Energy and Environment Edited by V Subramanian and S Subramanian, Springer, Singapore | 2019 |

B). Papers presented by the faculty members in National and International conferences/ symposiums/ workshops:

1. **N.Arun Prem Anand**, Bhavatharini, Aparna, Simulation of Crude Oil Atmospheric and Vacuum distillation column using ASPEN Plus - National Conference on Innovations in Chemical Engineering for Sustainable Development (ICES 2018) , March 2018
2. **N.Arun Prem Anand**, Optimization of Tri-Ethylene Glycol (TEG) Dehydration Process using Aspen HYSYS, International Conference on Mathematical Methods, Modeling and Simulation in Chemical Sciences (ICMMSC2018), December 06 – 08, 2018 , Department of Mathematics, Department of Chemical Engineering, SSN College of Engineering & Society for the Advancement of Chemical Sciences and Education
3. **N.Arun Prem Anand**, S. Arun Senthil and S. Sundaramoorthy, Modeling and optimization of Industrial Scale Membrane Steam reformer for production of Hydrogen, First International Conference on Energy and Environment: Global Challenges, 9-3-2018, National Institute of Technology, Calicut.
4. **N.Arun Prem Anand**, S. Arun Senthil and S. Sundaramoorthy, Comparative Performance Analysis of Industrial Scale Catalytic Steam Reformer with Membrane Steam Reformer, 28th European Symposium on Computer Aided Process Engineering, 11 -13 June 2018, Graz, Austria.
5. Bhavatharini Suresh, **Arun Prem Anand Natarajan**, Simulation of Air Pollutant Dispersion Using Gaussian Plume Model, 4th International Conference on Recent Advancements in Chemical, Environmental and Energy Engineering , Feb 2019.

C). National and International Conferences/ symposiums/ workshops attended by the Faculty members:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S.****No.** | **Name of Faculty** | **Name of the Conference/ symposium/ workshop** | **Place** | **Date** |
| 1 | Dr. N. Meyyappan | Six day FDTP on CH8551-Mass Transfer I | St. Joseph College of Engineering | 17.6.2019 |
| Short term training Programme on “ Recent advances in Industrial Pollution control” | SRMIST, Kattankulathur | 12.11.18 |
| 2 | Dr. C. Anand Babu | Short term training Programme on “ Recent advanes in Industrial Pollution control” | SRMIST, Kattankulathur | 12.11.18 |
| 3 | Dr. R. Palani  | Recent innovations and developments in Electrochemical and chemical process optimization | St. Joseph College of Engineering | 17.6.2019 |
| 4 | Dr. R. Govindarasu | DST-SERB sponsored national level STP on biofuels and fuel cell: fundamentals and applications | Annamalai University, Chidambaram | 3.12.2018 |
| 5 | Dr. M. Yogeshkumar | Short term course on Sustainable Engineering: Theory and Practice | Indian Institute of Technology, Bombay | 3-7, December 2018 |
|  | QIP- Short term course on “"Data Analysis for Modelling of Chemical and Biochemical Reaction Systems Theory to Practice” | Indian Institute of Technology, Madras | 2-7, December 2019 |
| 6 | Ms. A. C. Vijayalakshmi, | FDP on “Recent advances in Pollution abatement” | SSN College of Engineering | 26.11.2018 |
| 7 | Ms. G. Sudha | FDP on “Recent advances in Pollution abatement” | SSN College of Engineering | 26.11.2018 |
| CFD with Chemical Engineering | SRM University, Kattankulathur | 24.6.2019 |
| 8 | Mr. B. S. Vishal | Six day FDTP on CH8551-Mass Transfer I | St. Joseph College of Engineering | 17.6.2019 |
| 9 |  Mr. N. ArunPremAnand | FDP on “Recent advances in Pollution abatement” | SSN College of Engineering | 26.11.2018 |
| QIP short term course on “ Concepts in Chemical Reaction Engineering” | Indian Institute of Science, Bangalore | 10.6.2019 |
| 10 |  Mr. D. Sivakumar | FDP on “Recent advances in Pollution abatement” | SSN College of Engineering | 26.11.2018 |
|  | One day national workshop on “Writing Scientific Research Paper- Phase VII” | SSN College of Engineering, Kalavakkam. | 25.01.2019 |
| 11 | Ms. P. G. Priyadharshini | FDTP on CH16701-Chemical Reaction Engineering-II | A. C. Tech, Anna University | 27.5.2019 |
| 12 | Mr. S. Jai Ganesh  | “ Learn and Explore MedTech” | HTIC, IITM Research Park | 14.9.2018 |
| QIP short term course on “ Concepts in Chemical Reaction Engineering” | Indian Institute of Science, Bangalore | 10.6.2019 |
| 13 | Dr. G. Saraswathi | QIP short term course on “ Concepts in Chemical Reaction Engineering” | Indian Institute of Science, Bangalore | 10.6.2019 |
| Waste to Energy conversion (8 weeks course) | NPTEL | 8 weeks |
| 14 | Mr. S. Bharath | Six day FDTP on CH8551-Mass Transfer I | St. Joseph College of Engineering | 17.6.2019 |
| 15 | Ms. N. P. Kavitha | FDTP on CH16701-Chemical Reaction Engineering-II | A. C. Tech, Anna University | 27.5.2019 |
| 16 | Ms. S. Swathi | Technical English for Engineers | NPTEL | 8 weeks |
| 17 | Ms. N. Sundari | Waste to Energy conversion (8 weeks course) | NPTEL | 8 weeks |
| 18 | Ms. G. Thayanidhi | Waste to Energy conversion (8 weeks course) | NPTEL | 8 weeks |
| Technical English for Engineers | NPTEL | 8 weeks |

**2) Departmental research activities:**

A). Symposium, Conferences, Workshop and Guest lectures Conducted:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| S. No. | Name of the Event | Place | Period | Funding Agency | National/International  | Convener and Faculty In charge |
| 1 | Introduction to pollution prevention and control-Special reference to Wastewater | SVCE | 23.07.18 | svce | National | Dr.D.Swaminathan / Ms.P.G.Priyadharshini |
| 2 | Electrophilic and Nucleophilic Reactions | 31.08.18 |
| 3 | A novel approach to convert carbon rich feedstock to renewable crude for fuel applications | 20.09.2018 |
| 4 | Gas Liquid Reaction: Mathematical Model Development | 03.10.2018 |
| 5 | Marine Organisms: Devils or Dangers? | 09.10.2018 |
| 6 | Role of Chemical Engineers for the society | 13.10.2018 |
| 7 | Basics of Nanotechnology | 23.11.2018 |
| 8. | Liquid Foodprocessing,packaging andAsepticTechnology | 06.11.2018 |

B) Ongoing funded projects in the in the Department:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S. No. | Name of the Project | Funding Agency | Period &Amount Sanctioned | Coordinators | Status of the project |
| 1 | SERB- Studies on the effect of different metabolic uncouplers on the specific degradation rate of toluene in a biofilm reactor | DST-SERB | 3 Years19.8 Lakhs | Dr. D. Swaminathan | In Progress |
| 2 | Process development and pilot scale demonstration for removal of metallic and other impurities from used pickle solution of SSTP, NFC | BRNS | 3 Years20.15 Lakhs | Dr. C. AnandBabu and Ms. S. Swathi | In Progress |
| 3 | Production of ultrapure water by indigenous resins and columns | MSME | 1.6 Years6 Lakhs | Dr. C. AnandBabuMr. L.S.Bhadri Narayanan | In Progress |
| 4 | Enrichment of geraniol composition in palmorosa oil using simultaneous microwave-assisted extraction and hydro- distillation | TNSCST | 6 Months/0.1 Lakhs | Dr.R.Govindarasu  | Completed |
| 5 | Experimental investigation of yield using lab scale reactive distillation apparatus | SVCE | 6 Months/ 0.1 Lakhs | Dr.R.GovindarasuMr.S.Jai Ganesh | Completed |

 C). Projects submitted to Funding Agencies by the Department:

|  |  |  |  |
| --- | --- | --- | --- |
| Faculty Name | Title of the Project | Funding Agency | Status |
|  Dr.R.Govindarasu Dr.C.AnandBabu Dr.N.Meyyappan  | Enhancement of Blue energy generation from salinity gradients through modification of Capacitive Reverse Electro Dialysis | DST | Submitted |

D). Research centre status of the department: Active till Dec-2019

**3) Student Research Activities:**

1. A). List of projects carried out by the students in the department as in house and Industrial project:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S. No. | Name of Student | Title of the Project | Inherent project maker | In house | Industry |
| **Ph.D (Chemical Engineering)** |
| 1 | Ms. B. Suganya | “Studies on the effect of different metabolic uncouplers for enhancing the degradation rate of toluene in a bio-film reactor” | Dr. D. Swaminathan | X | - |
| 2 | Mr. L.S.Bhadri Narayanan | Sodium infiltration studies in irradiated metallic fuels using surrogate materials | Dr. C. AnandBabu | X |  |
| **M.Tech (Chemical Engineering)**  |
|  |
| **B.Tech (Chemical Engineering)**  |

|  |  |  |  |
| --- | --- | --- | --- |
| MENTOR NAME | Industry/inhouse | STUDENT NAME | TITLE OF THE PROJECT |
| Dr. N. MEYYAPPAN | Industry | ABIRAMI S |  Manufacture of Bitumn from Crude oil  |
| DIVYAM NAYYAR |
| GANESHRAM B |
| Dr.C.ANAND BABU |  | APARNA D |  manufacture of formaldehye from methanol  |
| KARTHIKEYAN N |
| KISHORE RAJ M |
| Dr. V. NALINKANTH GHONE |  | JEEVA K |  manufacture of pyrolysis oil from waste plastic  |
| JNANESH |
| KESAVAN S |
| Dr. R. PALANI |  | HARISH S M |  manufacture of ethanol from cellulose  |
| MATHANGI LAKSHMI M |
| KRITHICKYESHWANTH R |
| Dr. R.GOVINDARASU |  | HARISH KUMAR R |  Manufacture of Ethylacetate  |
| GOKUL RAJ A |
| DINESH R |
| Dr. R.GOVINDARASU | Industry | BRINDHA V |  Conversion and Extraction of Nornaml Paraffin from Kerosene  |
| ANUBAMA P |
| JOHN PRADEEP J |
| Ms.A.C.VIJAYA LAKSHMI |  | KEERTHIGA R |  Efficiency improvisation of ammonia production by recovery of hydrogen from purge gas stream using pressure swing adsorption |
| MARIAAMALMANSINGH C |
| AARTHI S |
| [Ms.G.SUDHA](http://www.svce.ac.in/departments/chemicalengg/profile/index.php?id=CHE2392008) |  | MINAKSHI A |  Manufacture of polydimethyl siloxane by octmethyl tetra siloxane |
| LINGESHVARAM R |
| MICHEAL ABINESH M |
| [Mr.B.S.VISHAL](http://www.svce.ac.in/departments/chemicalengg/profile/index.php?id=CHE4622011) |  | DHANUSH T |  Manufacture of Urea by recycling Ammonia and CO2  |
| KARTHICK E |
| RAJKUMAR S |
| [Mr.N.ARUN PREMANAND](http://www.svce.ac.in/departments/chemicalengg/profile/index.php?id=CHE5902013) |  | BHAVATHARINI S |  manufacture of Para- xylene by Toluene Alkylation  |
| AKASH R |
| SADAMUNEESWARAN M |
| Ms.P.G.PRIYA DARSHINI | Industry | FAZIL PRABAKARAN M |  manufacture of methylpropionate by Lucite alpha process of methanol  |
| MANOJ R |
| ASWIN S |
| Ms.S.SWATHI |  | ARUNA S |  Production of butadiene from ethanol  |
| KARTHIK S |
| AAKASH NATHAN R |
| Dr.G.SARASWATHI |  | AJITHKUMAR S |  Manufacture of Chloroform  |
| BHARATHI BABU S |
| GEO P |
| Dr.G.SARASWATHI |  | ASWINNKUMAR C A |  Production of Oxalic acid from molasses through microbial route |
| ARVINDSWAMY C |
| ARVIND V |
| Ms. N. SUNDARI | Industry | KAVEEYA T |  Hydrotreatment to produce low sulfur kerosene  |
| ASHWIN U |
| PRAVEEN RAJ R |
| Dr.M.YOGESH KUMAR |  | ANNIE |  production of exopolysaccharides from microalgae  |
| BALAKUMARAN SJ |
| BALAJI V |
| Dr. N. MEYYAPPAN |  | NANDITA KANNAN | Production of Furfural from sugarcane bagasse |
| SHILPA KUMAR L |
| VENKATASUBRAMANIAN P |
| Dr.C.ANAND BABU | Industry | UPENDAR C | Production of Propylene by dehydrogenation of Propane |
| SRIKANDAN G |
| THARUN VENKAT K |
| Dr. V. NALINKANTH GHONE |  | SIVASUBRAMANIAN M | Production of Propylene Glycol |
| SATHISH T |
| VIKNESWARAN S |
| Dr. R. PALANI | Industry | PREM SUGI S R | study of production of beer by microbial fermentation |
| RAJALAKSHMI S |
| MOHAMMED YOUNUS |
| Ms.A.C.VIJAYA LAKSHMI | Industry | RAKSHANA R | manufacture of sulphur by using modified claus process with the enhancement of corrosion inhibition  |
| NIRANJAN NARAYANAN G |
| VRUTIKA NAYAN BHATT |
| [Mr.B.S.VISHAL](http://www.svce.ac.in/departments/chemicalengg/profile/index.php?id=CHE4622011) |  | MITHILA RAMANI | Sizing of Reactor and distillation column in MEK manufacturing for higher production |
| POOJA GOPINATH |
| VIGNESHWAR RK |
| Mr.S.RAJASEKAR | Industry | MUHADH K M | manufacture of phthalic anhydride from o - xylene |
| SAGAYA RAJ Y |
| SASIDHARAN S |
|  | SABARISH A |  Manufacture of Acetaldehyde by oxidation of Ethylene |
| RAGHUL T |
| TAMILMANI D |
| Mr.D.SIVAKUMAR |  | MUTHU SETHU PATHI S |   manufacture of acrlonitirle by propylene ammonia oxidation |
| YAMUNA R |
| DHIRAJ ATHREYA S |
| Industry | SURYAPRAKASH K | Manufacture of Aniline from Nitrobenzene |
| SATHISH KUMAR D |
| RUPENDAR V V |
| [Mr.N.ARUN PREMANAND](http://www.svce.ac.in/departments/chemicalengg/profile/index.php?id=CHE5902013) | Industry | SUJITH KUMAAR S | manufacture of Phenyl Propyl alcohol by catalytic hydrogenation of cinnamaldehyde |
| SHARATH J KUMAR |
| PRIYADHARSAN S |
| Ms.P.G.PRIYA DARSHINI |  | RAGHAVI R | Production of Butyl Alcohol |
| VIGNESH S |
| RAJIVRAMAN J |
|  Mr.S.JAI GANESH |  | PRAVEEN KUMAR J | Production of butadiene from n butane |
| RAGHUL SETHUPATHY L |
| Ms.S.SWATHI | Industry | SABARRI KUMARAVEL | study of Production of Propylene oxide at MPL |
| SOUMYA SAROJINI D |
| RAMKUMAR SHARMA R |
| Dr.M.YOGESH KUMAR |  | MOPATI NAVYA REDDY | Manufacture of Bio Oil from Rice husk |
| SASIKUMAR G |
| SRIRAM T |
| Mr.S.BHARATH | Industry | SOWNDARIYA B | manufacture of NPK fertliser |
| PAVITHRA J |
| SEYYATHU SUBEERKHAN I |
| Ms.G.THAYANIDHI |  | SHRREYA N | Manufacture of sodium salt of Napthlene sulphonic acid formaldehyde condensate |
| SHRUTHI K |
| NIVEK K |

 B). Research Publications by students in National and International Journal:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S. No. | Name of Students | Title of the paper | Name of the Journal | Date |
| 1 | S. Bhavatharini | PID Controller Tuning using ASPEN HYSYS | International Journal of Research in Engineering and Advanced Technology | Apr2018 |
| 2 | S. Bhavatharini | Comparative Study of PID Controller tuning methods using ASPEN HYSYS | International Journal of Scientific Research and Review | Apr 2018 |
| 3 | Ananya, R.Gokul, Abirami | Enhanced corrosion protection by recycled Polyurethane | Asian Journal of Applied Science and Technology | Apr 2018 |
| 4. | S. Arun Senthil | Comparative Performance Analysis of Industrial Scale Catalytic Steam Reformer with Membrane Steam Reformer | Computer-Aided Chemical Engineering Vol. 43. Edited by: Anton Friedl, Jí J. Klemeš, Stefan Radl, Petar S. Varbanov, and Thomas Wallek. Published by: Elsevier B. V., Amsterdam | June2018 |
| 5. | S. Arun Senthil | Modeling and optimization of Industrial Scale Membrane Steam reformer for production of Hydrogen | Global Challenges in Energy and Environment Edited by V Subramanian and S Subramanian, Springer, Singapore | 2019 |
| 6 | D. Aparna, A. Minakshi | Dynamic Simulation of Heat transfer through Cooling Tower using MATLAB Simulink | American International Journal of Research in Science, Technology, Engineering and Mathematics  | Jan 2019 |
|  |  |  |  |  |

C). Research Presentations by students in National and International Conferences/ symposiums/ workshops:

D) National and International Conferences/ :

 symposiums/ workshops attended by the students

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **STUDENT** | **YEAR/****SEC** | **ACTIVTY** | **DETAILS** | **VENUE** | **DATE** |
| Mr.S.Mohanamurali | III / A | Journal Publication | International Journal of Computer Sciences and Engineering |  - | December 2018 |
| Ms.S. Bhavathirini | IV/A | Paper Presentation  | 4th International conference on recent advancements in chemical, Environmental and energy engineering | SSN College of Engg. | 14/02/19&15/02/19 |
| Mr.Sriram Venkiteswaran | III/B | Speak for India | Selected for finals and got participation certificate and cash prize of Rs. 25,000/- | ITC Grand Chola, Chennai | 27/2/2019 |
| Mr. M. Monisha Mary Ms.V.Gayatri  | III/B | Poster Presentation(Second Prize) | National Level Technical Symposium Extract 2018 | Sriram Engg. College | 26/9/2018 |
| Mr.D. Sriram Venkiteswaran,Mr.K.Sivaneswaran | III/B | Paper Presentation(Third Prize) | A National Level Techfest Invente 3.0 | SSN Collegeof Engg | 21/9/2018 to22/9/2018 |
| Ms.S.Vasumathi Ms.M.Swetha  | III/B | Paper Presentation(Third Prize) | A National Level Techfest Invente 3.0 | SSN Collegeof Engg | 21/9/2018 to22/9/2018 |

**4) Sponsorship details of faculty and students:**

 **I) Sponsorship for faculty members:**

 A) Faculty sponsored for presentation in National : -

 Conferences/ symposiums/ workshops

B) Faculty sponsored for presentation in International : -

Conferences/ symposiums/ workshops

 C) Faculty sponsored for attending national : -

 Conferences/ symposiums/ workshops

**II) Sponsorship for Students:**

1. Students sponsored for presentation in National Conferences/ symposiums/ workshops:

B). Students sponsored for presentation in : Mr. S. Arun Senthil - Rs 97,000

International Conferences/ symposiums/ workshops

C). Students sponsored for attending national : -

Conferences/ symposiums/ workshops

* 1. **Research cell(s) /area(s) of research in the department:**

Mixing, Hydrotropes, Solar Drying, Environmental Technology, Automation of Fuel Cell, Membrane Separation, Waste Water Treatment, Biofuel Technology, Food Processing Technology, Bioprocess monitoring and control, Fluidization Engg, Computational Fluid Dynamics, Electrochemical Process, Corrosion and Advanced Oxidation Process.

* 1. **Consultancy work in the department:**

i) Ongoing Consultancy work for IndCzech Pvt Ltd, Chennai.

ii) Completed Consultancy work by June 2018 for Thirumalai Chemical Ltd, Ranipet, titled “CFD Analysis of Raw Gas Heater” and awarded amount 167707.00 INR.

* 1. **Patent information:**  -

Co-Ordinator/CH HOD/CH